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S/089/63/014/001/006/013
B102/B186

24,6600

AUTHORS: Val'ter, A. K., Klyucharev, A. P.TITLE: The isotop: effect in the elastic scattering of protons
from nuclei

PERIODICAL: Atomnaya energiya, v. 14, no. 1, 1963, 48-56

TEXT: In order to make an accurate study of the effect of nuclear structure on the elastic proton scattering, separated isotopes were investigated and measurements were made at $E_p = 5.4$ and 19.6 Mev, using the linear accelerator of the Fiziko-tekhnicheskii institut AN USSR (Physicotechnical Institute AS UkrSSR) in Khar'kov, and at $E_p = 6.8$ Mev using the cyclotron of the Institut fiziki AN USSR (Institute of Physics AS UkrSSR) in Kiyev. In all cases the curves $\sigma(\theta)/\sigma(\theta)_0 = f(\theta)$ were obtained, where $\sigma(\theta)$ is the measured scattering cross section; $\sigma(\theta)_0$ is the Coulomb scattering cross section. The protons were recorded by the nuclear photoemulsion and scintillation methods. The measured angular

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The isotope effect in the ...

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distributions were compared in all cases with theoretical values calculated with the aid of an electronic computer according to the optical model. Results: No reliable results were obtained for the calcium isotopes Ca^{40} and Ca^{48} due to the oxidation of the target. Cr^{52} and Cr^{53} were bombarded with protons of 5.4 and 6.8 Mev; the angular distribution showed two maxima in all cases, the maxima being somewhat higher for Cr^{52} . The scattering observed on the even-even Cr^{52} with magic N was similar to that on Ca^{40} for 5.4 Mev. The following Ni isotopes 58, 60, 62, and 64 were used as targets. E_p was 5.4 and 6.8 Mev. At 5.4 Mev the angular distribution for the first three isotopes was alike and analogous to that on Ca^{40} and Cr^{52} . Ni^{62} , however showed an essentially lower scattering intensity at large angles. In this respect Ni^{64} behaves as an odd nucleus. At 6.8 Mev Ni^{58} and Ni^{60} behaved as Cr^{52} and Ni^{62} but as odd nuclei. In general the agreement with theory is good; a divergence appears for Ni^{60} at 5.4 Mev and for Co, Cu⁶⁵,

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The isotope effect in the ...
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 Ge^{73,74}, Cd^{111,113,116}, Sn^{116,117,118,119,120,122,124}, Pb^{207,208} and Bi
 were investigated at E=19.6 Mev. The results $\sigma(\theta)/\sigma(\theta)_0 = f(\theta)$ are given
 also for the same isotopes that were investigated at lower E_p. The
 angular distributions had 3-4 maxima and minima which shows that it is a
 case of diffraction scattering which is well described by the optical
 model. There are 10 figures and 1 table. ✓

SUBMITTED: September 13, 1962

Card 4/4

8/048/63/027/001/040/043
B108/B180

AUTHORS: Remayev, V. V., Korda, Yu. S., and Klyucharev, A. P.
TITLE: Investigation of isomeric transitions with a half-life of $10^{-4} - 10^{-1}$ sec in even-even nuclei
PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27, no. 1, 1963, 125-131

TEXT: The multipolarity and the type of isomeric gamma transitions in Ce^{138} , Nd^{140} , and W^{180} nuclei were determined from the total coefficient of internal conversion, α , which was measured by a scintillation method, thus reducing the problem to the counting of the conversion electrons. In determining the geometry of the detecting apparatus an expression suggested by Nelson and Blechman (of. Benjamin P. Burt, Nucleonics, 5, no. 2, 28 (1949)) was used. The conversion electron and isomeric gamma radiation spectra were examined on a single-channel pulse-height analyser, the background being taken into account at every stage. The results indicate a change in the parity of the states during the transitions in

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S/056/63/044/002/012/065
B102/B186

AUTHORS: Chursin, G. P., Gonchar, V. Yu., Zalyubovskiy, I. I.,
Klyucharev, A. P.

TITLE: The (n,p) reaction cross-sections for tin isotopes at
neutron energies of 14.5 Mev

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 2, 1963, 472-474

TEXT: The activation method was used for measuring the (n,p) reaction
cross-sections in metallic thin-foil targets, enriched with the following
isotopes: Sn¹¹² 66.2%, Sn¹¹⁶ 92.8%, Sn¹¹⁸ 88.4%, Sn¹¹⁹ 74.0% and Sn¹²⁰
99.1%. The cross-sections of the reactions Al²⁷(n,p)Mg²⁷, Ag¹⁰⁷(n,2n)Ag¹⁰⁶
and Ag¹⁰⁹(n,2n)Ag¹⁰⁸ were determined in test measurements. A comparison
of the experimental cross-sections with those calculated by D. G. Gardner
(Nucl. Phys., 29, 373, 1962) and V. M. Levkovskiy (ZhETF, 33, 1520, 1957)
shows that the semi-empirical law of the decrease of $\sigma_{(n,p)}$ with increasing

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The (n,p) reaction cross-sections ...

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mass number obtained by Gardner is not consistent with the experiment. It is suggested that the nuclear shell effects and the presence of strongly competing reaction channels on transition from isotope to isotope be taken into account.

	Exper. $\sigma(n,p)$, mb	Levk.	Card.
$\text{Sn}^{110}(n,p)\text{In}^{110}$ 48.6 min	$10.0^{+1.3}_{-1.0}$	38.4	1792
$\text{Sn}^{110}(n,p)\text{In}^{110}$ 5.4	5.4 ± 1.5	11.2	112
$\text{Sn}^{110}(n,p)\text{In}^{110}$ 4.5	11.7 ± 2.3	6.47	28
$\text{Sn}^{110}(n,p)\text{In}^{110m}$ 17.5 min [4.8 min]	11.1 ± 2.3	4.9	14
$\text{Sn}^{110}(n,p)\text{In}^{110g} + \text{Sn}^{110}(n,p)\text{In}^{110}$	10.6 ± 2.8	—	—
$\text{Sn}^{110}(n,p)\text{In}^{110}$ 51 min	4.8 ± 1.2	3.8	7

There is 1 table.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet (Khar'kov State University); Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of Nuclear Physics of the Academy of Sciences Kazakhskaya SSR)

Card 2/3

The (n,p) reaction cross-sections ...

S/056/63/044/002/012/065
B102/B186

SUBMITTED: August 27, 1962

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S/036/63/044/002/013/065
B102/B186

AUTHORS: Val'ter, A. K., Skakun, N. A., Klyucharev, A. P.,
Strashinskiy, A. G.

TITLE: Polarisation of the protons in the $\text{He}^3(d,p)\text{He}^4$ reaction

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 2, 1963, 475-477

TEXT: A cylinder 30 mm in length filled with He^3 gas was bombarded by deuterons of ~ 2 Mev obtained from an electrostatic accelerator. The proton polarization was measured with a helium polarimeter. In order to eliminate systematic errors, the analyzer was rotated through an angle of 180° during the measurements. At the well-known resonance $S_d = 450$ kev (excitation of the Li^5 $3/2^+$ level) the protons emitted are unpolarized, and this resonance can be used to determine the corrections for the analyzer geometry. The polarizations were calculated from the left-right asymmetry $R = (1 + P_1 P_a) / (1 - P_1 P_a)$; P_1 is the proton polarization, taken as positive in the direction of the normal of the scattering plane, and P_a

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S/056/63/044/004/012/044
B102/B186

AUTHOR: Golovnya, V. Ya., Klyucharev, A. P., Shilyayev, B. A.,
Shlyakhov, N. A.

TITLE: Elastic scattering of 4.2-Mev protons from nickel isotopes

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 4, 1963, 1184 - 1186

TEXT: The angular distributions of 4.2-Mev protons elastically scattered from $Ni^{58,60,62,64}$ nuclei were measured in the interval $30^\circ - 80^\circ$ in the lab system. The method was the same as described previously (ZhETF, 41, 32, 1961). A CsI(Tl) scintillator crystal with an QBY-C (FEU-S) photomultiplier was used for detection; the targets were free metallic foils (1.0-1.5 μ) enriched to 95%. The total error was $\pm 1\%$. The results are shown in a graph, with σ_{exp}/σ_R plotted versus θ , i.e. for each angle the number of particles scattered by the nickel target under investigation was compared with the corresponding value for gold, for which at the given energies the distribution follows Rutherford's formula (Phys. Rev. 1602, 1957). The distribution curves obtained for Ni^{58} and Ni^{60} differ greatly from those for Card 1/2

Elastic scattering of 4.2-Mev...

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Ni⁶² and Ni⁶⁴. In the first case $\sigma_{\text{exp}} > \sigma_R$ for angles below 60 - 70°, and the angular distribution has a maximum; in the second case there is always $\sigma_{\text{exp}} < \sigma_R$, and σ_{exp} decreases with increasing θ . This difference can be explained when the nuclear surface of Ni⁶² and Ni⁶⁴ is assumed to be much more smeared out as compared with that of Ni⁵⁸ and Ni⁶⁰; even the surface of Ni⁶⁰ is more distinct than that of Ni⁵⁸. There is 1 figure.

SUBMITTED: November 21, 1962

Card 2/2

E 13617-63

EWI(M)/BOS

AFPTC/ASD

ACCESSION NR: AP3003093

S/0056/63/044/006/1753/1759

58
52

AUTHOR: Klyucharev, A. P.; Krivets, O. Ye.; Rutkevich, N. Ya.

TITLE: The (p, Alpha) reaction at 20 MeV

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1753-1759

TOPIC TAGS: proton induced alpha emission, mass number dependence, natural cobalt, natural platinum, enriched copper, enriched nickel, enriched zinc, enriched tin, compound nucleus, direct interaction

ABSTRACT: The (p, Alpha) reaction was investigated on cobalt and platinum of natural isotopic composition and on various isotopes of nickel, copper, zinc, and tin. The present investigation was aimed at tracing in greater detail the dependence of the properties of the (p, Alpha) reaction on the mass number of the target, and is the first investigation in which targets of other than natural isotopic composition are used. The 20.5 MeV bombarding protons were produced in a linear accelerator, and the targets were free-standing foils. The Alpha particles resulting from the reaction were registered by specially developed nuclear emulsions placed at various angles to the direction of the incident protons. The emulsions made it possible to distinguish between protons and Alpha particles. The differential cross section of the reaction was found to decrease with in-

Card 1, 2

L 13618-63

ACCESSION NR: AP3003095 EWP(g)/EWT(m)/BDS AFPTC/ASD JD

S/0056/63/044/006/1755/1769

61
60

AUTHOR: Val'ter, A. K.; Klyucharev, A. P.; Nemets, O. F.; Tokarevskiy, V. V.

TITLE: Elastic scattering of deuterons by chromium and zinc isotopes

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1765-1769

TOPIC TAGS: elastic deuteron scattering, chromium isotope, zinc isotope, angular distribution, optical model, compound nucleus model

ABSTRACT: The angular distributions of 13.6-MeV deuterons elastically scattered by Cr sup 50, 52, 53, 54, and Zn sup 64, 68, 70 isotopes are measured at angles from 2.5 to 150° with the aim of studying isotopic effects for elastic scattering of deuterons, similar to studies already made for protons. The curves obtained for the ratio of the experimentally measured cross sections to the cross sections for Coulomb scattering have a diffraction nature. As the number of neutron increases, the maxima shift toward the smaller angles and the cross section begins to decrease at a higher rate with increasing angle. Comparison is made with data obtained by others. "In conclusion, the authors take this opportunity to express their gratitude to V. N. Medyanik, L. G. Lishenko, and A. D. Nikolaychuk for preparing the isotope targets, and to the

Card 1/2 cyclotron crew for uninterrupted operation of the apparatus.

Associations: Inst. of Physics, Academy of Sciences, UkrSSR.

L 13619-63

EWI(m)/ED3 AFPTC/ASD

ACCESSION NR: AF3003086

S/0056 103/044/006 1770, 1774

55
53

AUTHOR: Gritsyina, V. T.; Klyucharev, A. P.; Remyayev, V. V.; Reshetova, L. N.

TITLE: Ratio of the cross sections for the production of the isomer and ground states of nuclei in the (p,n) reaction at energies from threshold to 20 MeV

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1770-1774

TOPIC TAGS: p-n reaction, cross section, ground state, isomer state, compound nucleus model

ABSTRACT: Measurements are made of the cross sections of the nuclear reactions Y sup 89 (p,n) Zr sup 89m, Y sup 89 (p,n) Zr sup 89, Pr sup 141 (p,n) Nd sup 141m, Pr sup 141 (p,n) Nd sup 141g, Au sup 197 (p,n) Hg sup 197m, and Au sup 197 (p,n) Hg sup 197g, aimed at investigating their mechanism for incident-particle energies from threshold to 20 MeV. The reaction cross sections were measured by the induced activity method, with the (p,n) reaction excitation determined by means of foil stacks. The 20 MeV protons were obtained from a linear accelerator. The ratios of the cross sections for the production of the isomer and ground states were determined and were found for the most part in

Card 1/2

BEREZHNOY, Yu.A.; KLYUCHAREV, A.P.; RANTUK, Yu.N.; RUTKEVICH, N.Ya.

Mechanism underlying total nuclear decay. Zhur. eksp. i teor. fiz.
45 no.4:1030-1035 O '63. (MIRA 16:11)

1. Fiziko-tekhnicheskii institut AN UkrSSR.

SHUMILOV, S.N.; KLYUCHAREV, A.P.; RUTKEVICH, N.Ya.

Reactions yielding three α -particles in B^{10} interaction
with light nuclei. Zhur. eksp. i teor. fiz. 45 no.5:1356-
1359 N '63. (MIRA 17:1)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

GOLOVNYA, V.Ya.; KLYUCHAREV, A.P.; SHILYAYEV, B.A.

Elastic scattering of 3.4 - 4.2 Mev. protons on Ni^{62} and
 Ni^{64} isotopes. Zhur. eksp. i teor. fiz. 45 no.6:1727-1730
D 1963. (MIRA 17:2)

TIMOSHEVSKIY, G.P.; VANETSIAN, R.A.; KLYUCHAREV, A.P.; FEDCHENKO, Ye.D.

Compound-elastic scattering in elastic scattering of 5.45 Mev.
protons on nickel isotopes. Zhur. eksp. i teor. fis. 45
no.6:1951-1953 D '63. (MIRA 17:2)

1. Fiziko-tekhnicheskiy institut AN UkrSSR.

GONCHAROV, K. S.; KLYUCHAREV, A. P.

"The Energy Spectra of Alpha Particles in Reactions of Type (p,)."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22
Feb 64.

KhFTI (Ukrainian Physico Technical Inst, Khar'kov)

KLYUCHAREV, A. P.; PANYUK, Yu. N.; RUTKEVICH, N. Ya.; SHUMILOV, S. N.

"Concerning Reactions of Total Disintegration of Nuclei."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi,
14-22 Feb 64.

SKAKEN, N. A.; STRASHINSKIY, A. G.; KLYUCHAREV, A. P.

"Measurements of Polarization of Protons Scattered from Nuclei of D, T,
and He³."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi,
14-22 Feb 64.

KhFTI (Ukrainian Physico Technical Inst, Kharkov)

, V. Ya.; KLYUCHAREV, A. P.; SHILYAYEV, B. A.; SHLYAKHOV, N. A.

"Elastic Scattering of Protons with Energies 3.0 - 4.0 MeV on Cobalt and Isotopes of Chromium, Iron, and Copper."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

KhFTI (Ukrainian Physico Technical Inst, Khar'kov)

MEDYANIK, V.M. [Medianyk, V.M.]; KAREV, V.M. [Kariyev, V.M.]; KLYUCHAREV, A.P.
[Kliuchariev, O.P.]

Production of isotopic iron and chromium targets for nuclear research.
Ukr. fiz. zhur. 9 no.7:798-799 J1 '64. (MIRA 17:10)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.

ACCESSION NR: APL033611

S/0032/64/030/004/0438/0439

AUTHORS: Karev, V. N.; Bondar', A. D.; Klyucharev, A. P.

TITLE: Determining the thickness of metallic foils from their absorption of characteristic x-rays

SOURCE: Zavodskaya laboratoriya, v. 30, no. 4, 1964, 438-439

TOPIC TAGS: metallic foil, foil thickness, x ray absorption, magnesium, chromium, iron, copper, zinc, chromium iodide, absorption coefficient, surface density

ABSTRACT: Experiments were performed to determine local thickness and character of metal distribution in foils of Mg, Cr, Fe, Cu, Zn, and Pb-Sn. A short-wave x-ray spectrometer with a monitor was used. Measurements were taken with the help of a micrometrically operated collimator mounted in front of the counter aperture. The foil could be moved in a plane perpendicular to the x-ray beam, so that the areas of $0.05 \times 2 \text{ mm}^2$ could be investigated. In order to determine the surface density μ_0 , and consequently the thickness of foils, not only the intensities of radiation but also the coefficients of absorption μ_m for a given wavelength must be known. These

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ACCESSION NR: AP4033611

were determined from the absorption of MoK_{α} radiation. The surface density of Mg foil was obtained from its absorption of CuK_{α} , with μ_{Mg} taken as 39.3. In determining the character of metal distribution, the frames containing foil were placed in two mutually perpendicular planes. On Fig. 1 of the Enclosure the mean values of m_0 are shown by dashes, the experimental values by dots. This work represents a continuation of a previous article by V. N. Karev, A. P. Klyucharev, and V. N. Medyanik (Zavodskaya laboratoriya, XVIII, 12, 1449 1962). Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk, UkrSSR (Physicotechnical Institute, Academy of Sciences, UkrSSR)

SUBMITTED: 00

DATE ACQ: 28Apr64

ENCL: 01

SUB CODE: MM

NO REF SOV: 001

OTHER: 001

Card 2/3

ACCESSION NR: AP4033611

ENCLOSURE: 01

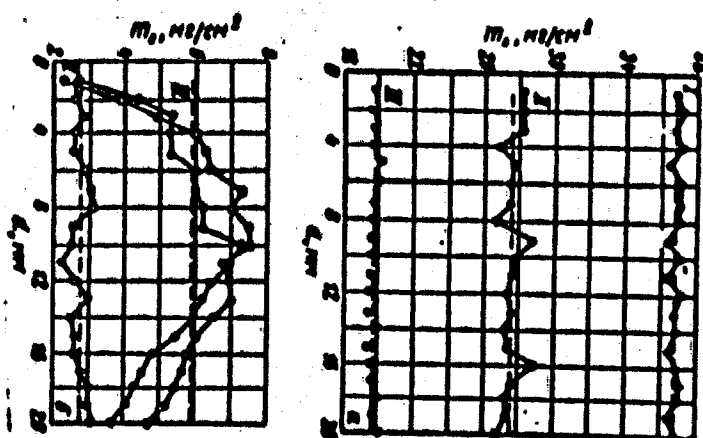


Fig. 1. Distribution of metal in the foils: I. copper; II. electrolytic iron; III. commercial lead-tin; IV. chromium produced by the decomposition of chromium iodide; V. electrolytic chromium.

Card 3/3

ACCESSION NR: AP4012540

S/0056/64/046/001/0167/0170

AUTHORS: Skakun, N. A.; Strashinskiy, A. G.; Klyucharev, A. P.

TITLE: Measurement of the polarization of protons elastically scattered by D-2, T-3, and He-3 nuclei

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 167-170

TOPIC TAGS: proton scattering, proton elastic scattering, scattered proton polarization, scattering by deuterium, scattering by tritium, scattering by helium-3, few nucleon system, proton double scattering

ABSTRACT: Owing to the great lack of experimental data on systems with few nucleons, and in view of the very crude assumptions used in the calculations, measurements were made of the polarization of protons scattered by He^3 in the energy interval from 2.7 to 4 MeV at 40° (c.m.s.). Noticeable polarization appears at energies above 2.5 MeV, reaching a maximum $P = 30 \pm 5\%$ at $E = 3.37$ MeV, and then

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ACCESSION NR: AP4012540

decreasing. Measurements have shown that there is practically no polarization of protons scattered by tritium at a c.m.s. angle of 40° and at 3.0 MeV. At 3.48 MeV the polarization amounts to $(22 \pm 11)\%$. Protons scattered by deuterium at 3.1 and 3.3 MeV exhibit negligible polarization. He^4 was used for the analysis of the polarization, and the doubly scattered protons were registered with photographic plates.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UkrSSR (Physicotechnical Institute, AN UkrSSR)

SUBMITTED: 21Aug63

DATE ACQ: 26Feb64

ENCL: 00

DATE ACQ: 26Feb64

NO REF SOV: 003

OTHER: 003

Card 2/2

ACCESSION NR: AP4031175

S/0056/64/046/004/1476/1477

AUTHOR: Rakivenko, Yu. N.; Skakun, Ye. A.; Yatsenko, G. I.; Klyucharev, A. P.

TITLE: Multipolarity of isomeric transition in the nucleus 58-Ce-138

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 4, 1964, 1476-1477

TOPIC TAGS: cerium, isomeric transition, multipolarity, decay scheme, conversion electron spectrum

ABSTRACT: The decay of the metastable state of the Ce^{138} nucleus, produced in the $\text{La}^{139} (p, 2n)\text{Ce}^{138m}$ reaction when a lanthanum target is bombarded with protons at ~ 20 MeV energy, was investigated with a magnetic β spectrometer. The electron detector was anthracene crystal 0.5 mm thick with a photomultiplier. The internal conversion electron spectrum yielded a value of 301 ± 1 keV for the transition energy, in agreement with data by others. The ratio of the K and L internal conversion coefficients, 2.44 ± 0.20 , comes closest to the rated value for the E3 transition, 2.58. It is deduced that the isomer state has a spin value of 7 and negative parity, so that the 2.14 MeV level can be regarded as a two-particle excitation caused by the breakup by a neutron pair and the transition of one neutron from the $h_{11/2}$

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1/3

ACCESSION NR: AP4031175

state to the $d_{3/2}$ state. The decay scheme is deduced from the measurements. Orig.
art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 20Jul63

DATE ACQ: 07May64

ENCL: 01

SUB CODE: NP

NR REF SOV: 001

OTHER: 001

Card

2/3

ACCESSION NR: AP4031180

S/0056/64/046/004/1483/1484

AUTHOR: Klyucharev, A. P.; Ushakov, V. V.; Chursin, G. P.

TITLE: The reactions (n, 2n) on Sn-112 and Sn-124 and (n, p) on Sn-112 and Sn-117 at 14.1 MeV

SOURCE: Zh. eksper. i teor. fiz., v. 48, no. 4, 1964, 1483-1484

TOPIC TAGS: tin 112, tin 117, tin 124, neutron reaction, neutron scattering, magic number, isomeric transition

ABSTRACT: In analogy with the research of D. L. Allan (Nucl. Phys. v. 24, 274, 1961) on nuclei with the magic number $Z = 28$ protons, the authors compare the experimental results for (n, p) and (n, 2n) reactions with the theoretical ones in the case of $Z = 50$. The cross sections were measured by the method of induced β activity. The separation of the activities due to the (n, p) and (n, 2n) reactions on Sn^{112} was carried out analytically. The experimental accuracy is not worse than 20%. The calculated ratios of the cross section on the metastable level (σ_m) to the cross section on the ground level (σ_g) imply that $\sigma_m/\sigma_g = (2I_m + 1)/(2I_g + 1)$, where I_m and I_g are the spins of the corresponding levels. As can be seen from the

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table, Cameron's set of 8 quantities (Can. J. Phys. v. 35, 1040, 1958) does not satisfy the experimentally obtained cross sections. This must be attributed to the influence of shell effects as well as of direct interactions (particularly for Sn^{117}). Orig. art. has: 1 table.

ASSOCIATION: None

SUBMITTED: 15Sep63

DATE ACQ: 07May64

ENCL: 01

SUB CODE: NP

NR REF SOVY 001

OTHER: 003

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ACCESSION NR: AP4031184

ENCLOSURE: 71

Реакция	числ. мг	расчет. мг	Данные других работ	числ. расчет	числ./г. расчет
$\text{Sn}^{113} (\alpha, 2n) \text{Sn}^{111}$	1810	1860	$1800 \pm 7\% [1]^*$	1	
$\text{Sn}^{114} (\alpha, 2n) \text{Sn}^{112g}$	900	450		2	3
$\text{Sn}^{113} (\alpha, p) \text{In}^{113}$	143	35		4	3
$\text{Sn}^{112} (\alpha, p) \text{In}^{112m}$	100	27			
$\text{Sn}^{117} (\alpha, p) \text{In}^{117}$	23	2		11,5	

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"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000723310006-9

APPROVED FOR RELEASE: 06/19/2000

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... 47. 1649. 1962: Yrv. AN 8888 ser. fix.

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GRITSINA, V.T.; KLYUCHAREV, A.P.; REMAYEV, V.V.

On the isomers Gd199m and Sb117m. IAd. fiz. 1 no.6:948-950
Je 165. (MIRA 18:6)

I 9225-66 EMP(a)/EMP(m)/T/EMP(t)/EMP(h)/EMA(m)-2 LIP(a) JD
ACC NR AP5026096 SOURCE CODE: UR/0386/65/002/005/0213/0215

AUTHOR: Shamilov, S. N.; Klyucharev, A. P.; Rutkevich, N. Ya.

ORG: Physicotechnical Institute, Academy of Sciences UkrSSR (Fiziko-tekhnicheskiy institut Akademii nauk UkrSSR)

TITLE: Pickup of a deuteron and an Alpha particle in the interaction between B^{10} and O^{16}

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. (Prilozheniye) v. 2, no. 5, 1965, 213-215

TOPIC TAGS: deuteron reaction, Alpha particle reaction, boron, oxygen, carbon, nucleon interaction, nuclear emulsion

ABSTRACT: A rather large number of four-prong stars was observed in a study of the interaction between B^{10} ions and emulsion nuclei, three of the prongs being tracks of α particles and the fourth the track of a heavier particle. Type NIKFI-D nuclear emulsions 400 μ thick were bombarded with B^{10} ions accelerated to 100 Mev in a linear accelerator. The B^{10} ions entered the emulsion at an angle of 25° to the surface. The emulsions made possible a reliable visual discrimination between tracks of singly-charged and doubly-charged particles and of heavier nuclei. Since the initial ion energy was known, it was possible to determine the energy at which the reaction took place by measuring the range of the B^{10} ion. The visual selection and subsequent detailed kinematic analysis, carried out with an "Ural-2" computer made it possible to

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1 9225-66

ACC NR: AF5026096

identify 252 stars due to the reaction $O^{16} + p^{10} \rightarrow N^{14} + \gamma$ - 2.0 Mev. Not a single case of this reaction was found when the energy of the bombarding ions was less than 25 Mev. The cross section at the maximum reached 111 mb. The angular distributions (Fig. 1), has two pronounced maxima in the region of small and large angles, reaching 20 and 14 mb/sr, respectively. The maximum in the small-angle region is due to a reaction mechanism in which an α -particle complex is picked up from the O^{16} nucleus by the incident p^{10} ion. The maximum in the large-angle region is apparently due to a reaction mechanism in which the incident p^{10} ion picks up a deuteron complex from the O^{16} nucleus. The excitation energies of the C^{12} nuclei observed in these cases exceed 25 Mev as a rule, and reach 40-45 Mev. The C^{12} nucleus decays directly into three α particles without interaction between them, or else via Be^8 states with excitation energy larger than 20 Mev. Author thanks Ye. V. Cherkashyna

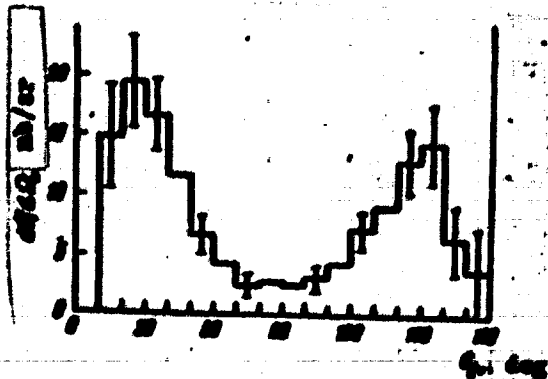


Fig. 1. Angular distribution of the nuclei N^{14} (in the c.m.s.), averaged over the bombarding ion energies from 25 to 95 Mev.

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L 12024-66 EWT(m)/EWA(h)

ACC NR: AP5028001

SOURCE CODE: UR/0386/65/002/007/0347/0351

AUTHOR: Shumilov, S. M.; Klyucharev, A. P.; Rutkevich, N. Ya.

ORG: none

TITLE: Total nuclear decay reactions ^{19, 44, 55}

40
35
B

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v red-
aktsiyu. (Prilozheniye), v. 2, no. 7, 1965, 347-351

TOPIC TAGS: Alpha decay, nitrogen, boron, nuclear reaction. Alpha particle
reaction

ABSTRACT: This is a continuation of earlier measurements (ZhETF v. 45, 1356,
1963) of the cross sections of certain reactions with emission of α parti-
cles due to B^{10} ions interacting with light nuclei in emulsion. In the
present paper they report a more detailed investigation of the reaction N^{14}
+ B^{10} . Type NIKEI-D nuclear emulsions 400 " thick were bombarded with B^{10} ions
accelerated to 100 Mev in the multiply-charged-ion linear accelerator of the
Ukrainian Physicotechnical Institute. The emulsions made possible reliable
visual discrimination of the tracks of singly-charged or doubly-charged

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L 12024-66

ACC NR: AP5028001

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particles, and of heavier nuclei. From a total of approximately 10,000 stars produced by the interaction between the B^{10} ions and nuclei in the emulsion, they identified, as a result of visual selection, measurement of all the star parameters, and subsequent detailed kinematic analysis, a total of 22 six-pronged stars due to the reaction $N^{14} + B^{10} \rightarrow 6\alpha + 0.4 \text{ Mev}$, one seven-prong star due to the reaction $N^{14} + B^{10} \rightarrow 2d + 23.5 \text{ Mev}$, and one seven-prong star due to the reaction $O^{16} + B^{10} \rightarrow 6\alpha + d + 20.5 \text{ Mev}$. The kinematic analysis of the stars and all the subsequent calculations were carried out with the "Urel-2" electronic computer. Not a single case of the first reaction was observed at bombarding-ion energy less than 55 Mev, whose cross section increases quite rapidly with increasing bombarding-ion energy, reaching 40 mb at 80 Mev. The only observed case of the second reaction occurred at 80 Mev bombarding-ion energy, and corresponds to a reaction cross section $\sim 5 \text{ mb}$. The energy distribution of the particles α shows that there is a noticeable probability of observation of particles α with much more than their equal to almost half the total kinetic energy, reaching 20--23 Mev in absolute magnitude. Authors thank V. M. Yemel'yanova, K. P. Skibenko, Ye. V. Chernavskaya, Ye. K. Minskaya, and T. N. Startseva.

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L 12024-66

ACC NR: AP5028001

for processing the emulsions. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 18,20/ SUBM DATE: 06Aug65/ ORIG REF: 003

JW

Card 3/3

KAREV, V.M. [Koriov, V.M.]; KLYUCHAREV, A.P. [Kliuchariev, O.P.]

X-ray spectral and absorption methods for target analysis.
Ukr. fiz. zhur. 10 no.8:907-910 Ag '65. (MIRA 18:8)

1. Fiziko-tehnicheskii institut AN UkrSSR, Khar'kov.

SHUMILOV, S.N.; KLYUCHAREV, A.P.; RUTKEVICH, N.Ya.

Capture of a deuteron and an alpha particle in $B^{10} - \alpha^{16}$
interaction. Pis'ma v red. Zhur. eksper. i teoret. fiz. 2
no.5:213-215 S '65. (MIRA 18:12)

1. Fiziko-tekhnicheskiy institut AN Ukrainskoy SSR. Submitted
July 5, 1965.

SHUMILOV, S.N.; KLYUCHAREV, A.P.; RUTKEVICH, N.Ya.

Reactions in complete nuclear decay. Pis'. v red. Zhur. eksper.
1 teoret. fis. 2 no. 7:347-351 0 '65. (MIRA 18:12)

1. Submitted Aug. 6, 1965.

KLYUCHAREV, A.P. [Kliuchariev, O.P.]; PALATNIK, L.S. [Palatnyk, L.S.];
NIKOLAYCHUK, A.D.

X-ray structural analysis of isotope targets designed for
nuclear research. Ukr.fis.shur. 10 no.12:1369-1371 D '65.
(MIRA 19:1)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov, 1
Khar'kovskiy politekhnicheskii institut im. Lenina. Submitted
April 19, 1965.

SHUMILOV, S.N.; ALYUCHAREV, A.P.; RUZAEVICH, N.Y.

Deuteron and alpha particle pickup in $D^{10} - O^{16}$ interaction.
Zhur.eksp. i teor.fiz. 49 no.6:1754-1763 D '65.

(MIRA 19:1)

1. Fiziko-tehnicheskii institut AN UkrSSR. Submitted July 20, 1965.

L 17602-66 EWT(m)/T

ACC NR: AP6002714

SOURCE CODE: UR/0056/65/049/006/1754/1763

AUTHORS: Shumilov, S. N.; Klyucharev, A. P.; Rutkevich, N. Ya.

ORG: Physicotechnical Institute, Academy of Sciences UkrSSR
(Fiziko-tekhnicheskij Institut Akademii nauk UkrSSR)

TITLE: Deuteron and Alpha-particle pickup in the interaction between B-10 and O-16 19,44,55

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 6, 1965, 1754-1763

TOPIC TAGS: nuclear emulsion, alpha interaction, ion interaction, deuteron interaction, boron, oxygen, nitrogen, excitation energy

ABSTRACT: The authors studied the reaction $O^{16} + B^{10} \rightarrow N^{14} + 3\alpha$ - 2.8 MeV between 100-MeV B^{10} ions and O^{16} nuclei in nuclear emulsion. In contrast with earlier investigations of transfer reactions, the authors have registered all the reaction products simultaneously, together with their characteristic energies and momenta. 400-μ NIKFI-B

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L 17602-66

ACC NR: AP6002714

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nucleon emulsions were irradiated with B^{10} ions accelerated to 100 MeV in the linear accelerator of the Ukrainian Physicotechnical Institute. The ions entered the emulsion at 25° to the surface. The reaction represented by each star in the emulsion was identified by kinematic analysis, using an Ural-2 computer. The excitation function of the reaction was found to have a maximum at 60 MeV B^{10} energy. The c.m.s. N^{14} angular distribution has both a small-angle and a large-angle maximum, due to the α -particle and deuteron pickup from O^{16} respectively. The reaction proceeds via formation of a C^{12} nucleus, whose excitation and decay into three α particles are studied. A mechanism is proposed for the described pickup reaction, based on the assumption that a deuteron cluster is picked up from the O^{16} by the B^{10} . Arguments in favor of this mechanism are advanced. Authors thank Ye. V. Inopin and V. G. Neudachin for valuable discussions and Ye. V. Cherkavskaya, V. N. Yemlyaninova, Ye. K. Panteleyeva, K. P. Skibenko, and T. N. Startseva for the large amount of work done in scanning the emulsions. Orig. art. has: 8 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 20Jul65/ ORIG REF: 003/ OTH REF: 009

Cord 2/2 nat

1 41323-66 ENT(m)/FNP(t)/ETI IJP(c) JD

ACC NR: AP6019610 (A,N) SOURCE CODE: UR/0048/66/030/002/0224/0328

AUTHOR: Klyucharev, A.P.; Titov, Yu.I.

ORG: Khar'kov State University (Khar'kovskiy gosudarstvennyy universitet)

TITLE: The (d,p) reaction on C^{12} at low deuteron energies /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minsk, 25 Jan. to 2 Feb. 1965/

SOURCE: AN SSSR, Investiya. Seriya fizicheskaya, v. 30, no. 2, 1966, 224-228

TOPIC TAGS: nuclear reaction, deuteron, proton, carbon, compound nucleus, angular distribution

ABSTRACT: The differential cross section for the $C^{12}(d,p)C^{13}$ reaction has been measured at deuteron energies from 0.5 to 1.8 MeV. The scattering chamber and semiconductor detectors employed in the investigation have been described elsewhere by V.Yu.Gonchar, I.I.Zalyubovskiy, L.A.Zubritskiy, Yu.I.Titov, and G.P.Chursin (Izv. AN SSSR, Ser. fiz., 28, 102 (1964)). The detector was shielded with a 19.6 mg/cm aluminum foil to eliminate the elastically scattered deuterons. Energy calibration was effected with the aid of a Po^{210} source mounted in the scattering chamber. The energy scatter of the deuteron beam was less than 10 keV. A thin unbacked carbon target was employed; its thickness, defined in terms of 0.75 MeV protons elastically scattered at 70° , amounted to 5 to 7 keV at different energies. Excitation functions

Card 1/2

1 41233-66 EWT(m)/ENP(t)/ETI IJP(c) JD
 ACC NR: AP8019811 (A,N) SOURCE CODE: UR/0048/66/030/002/0229/0231
 AUTHOR: Klyucharev, A.P.; Titov, Yu.I.
 ORG: Khar'kov State University Khar'kovskiy gosudarstvennyy universitet)
 TITLE: On measurement of charged particle ^{AM} spectra at small angles /Report, Fifteenth Annual Conference on Nuclear Spectroscopy and Nuclear Structure, held at Minak, 25 Jan. to 2 Feb. 1985/
 SOURCE: AN SSSR. Investiya. Seriya fizicheskaya, v. 30, no. 2, 1986, 229-231
 TOPIC TAGS: charged particle, particle counting, particle spectrum, pulse height discriminator, silicon diode
 ABSTRACT: There is described an electronic device that facilitates detection and measurement of the energies of charged particles against a high background of lower energy particles. The device was developed in connection with investigation of the α particles from the $^{13}\text{C}(\text{d},\alpha)\text{B}^{11}$ reaction against the background of elastically scattered deuterons. The difficulty arises from superposition of several background pulses to form a single pulse that can pass the discriminator. The idea of the described technique is immediately to shorten the pulses by differentiation, to discriminate against the background pulses while the pulses are short, and subsequently to stretch the pulses so that they can operate a commercial pulse height analyzer.
 Card 1/2

L 41288-66

ACC NR: AP6019611

In the experiments with the $\text{Cl}^{35}(\text{d},\alpha)\text{B}^{11}$ reaction, the pulse length at the discriminator was 0.2 microsec. The significant features of the discriminator and pulse stretcher unit were the use of a type D101 silicon point diode as discriminator and the use of a thermionic diode, rather than a crystal diode, in the pulse stretcher stage. The discriminator diode, whose capacity (with a 10 V back bias) was only 0.5pF, was very stable in operation. A silicon diode proved unsuitable for use in the pulse stretcher stage, however, because passage of a 10 mA forward current greatly reduced its back resistance, which did not recover until after 0.5 microsec. Orig. art. has: 3 figures.

SUB CODE: 09,20

SUBM DATE: 00

ORIG. REF: 002

OTH REF: 001

Card

2/2 LC

L 46704-66 EWT(m)/ENP(w)/T/ENP(t)/ETI IJP(c) WW/JD/JG/WB/GD

ACC NR: AT6020709

(N)

SOURCE CODE: UR/0000/65/000/000/0110/0117

AUTHOR: Klyucharev, A. P.; Nikolaychuk, A. D.; Iyubchenko, A. P.

ORG: Physicotechnical Institute, AN UkrSSR (Fiziko-tehnicheskij institut AN UkrSSR)

TITLE: Investigation of the properties of titanium, zirconium, and hafnium coatings deposited by the photodissociation method

SOURCE: AN UkrSSR. Fizika metallicheskih plenok (Physics of metal films). Kiev, Naukova dumka, 1965, 110-117

TOPIC TAGS: titanium, zirconium, hafnium, metal film, protective coating, refractory coating, corrosion protection

ABSTRACT: The authors investigated the feasibility of depositing anti-corrosion coatings of Ti, Zr, and Hf on metals and alloys by a thermodissociation (iodide) method, with a directed flow of iodides of these elements in a continuously evacuated system. This method was previously proposed by the authors (UFZh, 1962, v. 8, 1027) for the production of thin isotopic foils. The advantages of the method over others are described in detail. The produced coatings were tested for porosity (by the ferroxyl method), corrosion resistance (by comparison with Cd, Zn, Ni, or steel coatings), and electrochemical characteristics (by electrode potential measurements). The results showed that Ti, Zr, and Hf coatings 5 μ thick had more corrosion resistance than Zn, Cd, and Ni coatings 20 μ thick. Microstructure and phase-composition tests showed the coatings to be homogeneous and to have higher microhardness than the protected

Card 1/2

L 46701-66

ACC NR: AT6020709

metal. It is concluded that the proposed method can yield machine parts of high corrosion and heat endurance. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20, 11/ SUBM DATE: 30Oct64/ ORIG REF: 004, OTH REF: 002

Card 2/2

fv

L 46703-66 ENT(m)/ENP(k)/ENP(t)/EYI IJP(c) JD/HW/JG/GD

ACC NR: AT6020710

(N)

SOURCE CODE: UR/0000/65/000/000/0118/012

AUTHOR: Karev, V. N.; Klyucharev, A. P.; Lishenko, L. G.; Medyanik, V. N.

ORG: Physicotechnical Institute AN UkrSSR (Fiziko-tehnicheskii institut AN UkrSSR)

TITLE: Production of foils of platinum-group metals and gold, and measurement of their thickness

SOURCE: AN UkrSSR. Fizika metallicheskih plenok (Physics of metal films). Kiev, Naukova dumka, 1965, 118-125

TOPIC TAGS: gold, platinum group metal, metal film, metal deposition, metal property, x ray absorption, x ray measurement, isotope

ABSTRACT: The purpose of the study was to obtain, for nuclear-research purposes, thin foils of Pt, Pd, and Rh, which have not been obtained in foil form before, starting with small amounts of expensive isotopic raw material. It was also desired to obtain foils of gold and of the other metals with minimum metal loss. All foils were prepared by deposition from specially treated electrolytes, the production of which is described. The foil thickness was determined from its absorption of monochromatic x-rays. This is claimed to be more accurate than weighing. The apparatus used for this measurement is described in detail. The Pd and Rh foils were of uniform thickness (up to 7 μ), but those of Pt and Au exhibited considerable non-uniformity, attributed to irregularities in the relative electrode position, unevenness of the cathode surface, and to electric and electrochemical factors. Orig. art. has: 4

Cord 1/2

05029-07 SWI(R)/RWP(t)/ETI IJP(a) JD/JQ
 ACC NR. AP6028204 SOURCE CODE: UR/0387788/003/006/0003/0007
 AUTHOR: Gritsyna, V. T.; Klyucharev, A. P.; Remayev, V. V.
 ORG: none
 TITLE: Two new short-lived isomers of $\text{La}^{131\text{m}}$ and $\text{La}^{136\text{m}}$ isotopes
 SOURCE: Yadernaya fizika, v. 3, no. 6, 1966, 993-997
 TOPIC TAGS: isomer, short lived isomer, lanthanum, transition energy, isotropic barium, neutron interaction, isomer irradiation
 ABSTRACT: New $\text{La}^{131\text{m}}$ and $\text{La}^{136\text{m}}$ isomers were obtained when isotopic targets were irradiated by 20-Mev protons. The isomer state of the neutron-deficient La^{131} nucleus with a half-life of $158 \pm 5 \mu\text{sec}$ and a transition energy $E_{\gamma} = 170 \pm 5$ keV was obtained in the reaction of $\text{Ba}^{132}(p, 2n)\text{La}^{131\text{m}}$. The isomer $\text{La}^{136\text{m}}$ with $T_{1/2} = 110 \pm 5 \mu\text{sec}$ was formed in the $\text{Ba}^{136}(p, n)\text{La}^{136\text{m}}$ and $\text{Ba}^{137}(p, n)\text{La}^{136\text{m}}$ reactions. The 170 keV isomer state of the La^{136} nucleus decays to the ground state through the 100 ± 5 keV level. According to preliminary data, the isomer irradiation is formed by the interaction of protons

33
21
B
19

Card 1/2

ACC NR: AP6028204

2
with the Ba¹³⁸ nuclei. The authors express their gratitude to V. S. Zolotarev for supplying the isotopic barium. Orig. art, has: 2 tables and 6 figures. [Based on authors' abstract] 21

SUB CODE: 20/ SUBM DATE: 24Jul65/ ORIG REF: 005/ OTH REF: 004/

Card 2/2 *plu*

ACC NR: AP7008881

SOURCE CODE: UR/0367/66/004/004/0678/0682

AUTHOR: Critsyna, V. T.--Grigoryna, V. T.; Klyucharev, A. P.; Remayev, V. V.--
Remayev, V. V.

ORG: none

TITLE: Short-period isomers La sup 137m, Lu sup 172m, and Ir sup 187m

SOURCE: Yadernaya fizika, v. 4, no. 4, 1966, 678-682

TOPIC TAGS: isomer, gamma quantum, lanthanum, lutetium, iridium

SUB CODE: 20

ABSTRACT: The results of the investigation of two new short-period isomers La^{137m} and Lu^{172m} and a previously found (V. V. Remayev, V. T. Critsyna, Yu. S. Korda; ZhETF, 44, 1147, 1963) isomer Ir^{187m} are presented. The excited states of the lanthanum and lutetium nuclei were obtained in the irradiation of barium and ytterbium targets by protons. The isomer state La^{137m} decays with a half-life 12 ± 4 msec, emitting 230 ± 10 keV and approximately 450 keV γ -quanta. The half-life of the Lu^{172m} isomer is 450 ± 20 μ sec and its γ -ray energy spectrum consists of lutetium x-rays and a 68 ± 3 keV γ -transition. An additional γ -line with the energy 168 ± 5 keV was found in the γ -spectrum of the Ir^{187m} isomer. Decay schemes are suggested for all three isomers. The isomer state of the La¹³⁷ nucleus should probably be interpreted as a three-particle one. Further, an isomer activity with a half-life 0.75 msec and γ -ray energies 180, 280, and approximately 400 keV was found in the irradiation of an Yb¹⁷⁴ isotop target by fast protons. Orig. art. has: 5 figures and 1 formula. [Based on authors' Eng. abst.] [JPRS: 39,658]

Card 1/1

UDC: none

0923-1682

ACC NR. AP7000019

AUTHOR: Karev, V. N.; Klyucharev, A. P.; Lishenko, L. G.; Medyanik, V. N.

SOURCE CODE: UR/0080/66/039/011/2525/2529

ORG: none

TITLE: Preparation of platinum group and gold metal foils and measurement of their thickness

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 11, 1966, 2525-2529

TOPIC TAGS: metal film, palladium, rhodium, gold, platinum, metal plating

ABSTRACT: The purpose of the work was to prepare palladium, rhodium, platinum and gold foils for nuclear studies by starting from small quantities of expensive isotopic raw material, using a method which involved a minimum loss and a maximum utilization of the electrolyte. The conditions of electrodeposition and compositions of the electrolytic baths are given. Platinum anodes were used in all cases. The baths described made it possible to obtain Pd, Pt, Rh and Au foils 0.5 to 15 μ thick and 22 mm in diameter. The thickness of a foil in any given area was determined by using an x-ray method based on the absorption of a narrow monochromatic beam of x rays by the foil. The measurements were carried out by means of a shortwave x-ray fluorescence spectrometer. A certain nonuniformity observed in the thickness of Au and Pt foils is attributed to the geometrical arrangement of the electrodes relative to each other, the state of the cathode surface, and electric and electrochemical factors. Authors

Card 1/2

UDC: 621.793.546.91/.98+546.59

KLYUCHAREV, A. E.

23733 PRIMENENIYE OSTSILLOGRAFA V KURSE FIZIKI SREDNEY SHKOLY.
FIZIKA V SHKOLE, 1949, NO. 3, S. 57-65

SO: LETOPIS' NO. 31, 1949

CA

KLYUCHAREV, A. YE.

21

Thermal moisture conductivity in paper. A. E. Klyucharev and V. N. Shalygina. *Tekhnika Pech. 50, No. 2, 25-27 (1965).*—The simultaneous gradient of moisture and temp. is designated the thermal-moisture cond. For low-humid paper 60% dryness, the value of this function is of the order of 0.25-0.50% moisture/degree. The max. value is at 55% moisture content. The significance of the moisture content at max. thermal moisture cond. is that this is the max. admissible moisture content for drying a particular paper.
H. K. Livingston

KLYUCHAREV, A. YE.
KLYUCHAREV, A. Ye.

Diatomic insulation drying by means of infrared rays. Trudy
NTIPP no. 8:85-95 '57. (NIRA 10:12)
(Drying) (Infrared rays--Industrial applications)

SHUSHPANOV, P.I.; KOKOREV, D.T.; MIKHAYLOV, G.D.; KLYUCHAREV, A.Ye.

Ultrasonic apparatus for the emulsification of liquid mixtures.
Prim. ul'trakust. k isal. veshch. no.15:219-224 '61.

(Emulsions)

(Ultrasonic waves)

(MIRA 16:8)

KLYUCHAREV, A.Ye.; KOKOREV, D.T.; SHUSHPANOV, P.I.; MIKHAYLOV, P.Ye.;
BABYUK, A.G.

Preparation of aqueous solutions of allyl chloride in a hydro-
acoustic field. Trudy MIKHM 26:131-136 '64.

(MIRA 18,5)

[illegible]

KLYUCHAREV, B. V.

Klyucharev, B. V.-- "Hormone therapy in so-called hypertrophy of the prostate gland;
Vracheb. delo, 1949, No. 5, paragraphs 435-42.

SO: U-4630, 16 Sept. 53, [Letopis 'Zhurnal 'nykh Statey, No. 23, 1949).

KHITOMSKY, B. V. --

"Experimental Regeneration of the Prostate Gland and Its
Hormone Therapy." Dr Med Sci, State Inst for the Advanced Train-
ing of Physicians, Leningrad, 1953. (ZhMBiol, No 3, Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR
Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

KLYUCHANOV, B.V.; SHABAD, L.M., professor, redaktor; RULOVA, M.S.,
tekhnicheskiiy redaktor

[Experimental neoplasms of the prostate gland and hormone therapy
for them] Eksperimental'nye novooobrazovaniya predstatel'noy
shelesy i ikh gormonoterapiya. Pod red. L.M.Shabada. [Leningrad]
Oos. izd-vo med. lit-ry, 1954. 254 p. [Microfilm] (MIRA 7:10)

1. Ochen-korrespondent Akademii meditsinskikh nauk SSSR (for
Shabad)

(Prostate gland—Tumors)
(Hormones—Therapeutic use)

VASIL'YEV, Aleksandr Il'ich; KLYUCHAREV, B.V., redaktor; KHARASH, O.A.,
tekhnicheskii redaktor

[Urethroscopy and endourethral operations] Uretroskopiia i endo-
uretral'nye operatsii. Iss. 2-oe, ispr. 1 dop. [Leningrad] Gos.
iss-vo meditsinskoi lit-ry, Leningradskoe otd-nie, 1955. 162 p.
(Urethra--Surgery) (MLBA 9:1)

KLYUCHAREV, B.Y.; LITVINOVA, V.A.

Bilateral trauma of the kidneys complicated by anuria. Urologia
26 no.1:62-63 '61.

(KIDNEYS—WOUNDS AND INJURIES)
(URINE—SUPPRESSION)

(MIRA 14:3)

KLYUCHAREV - D. V.

USSR/Diseases in Farm Animals. Diseases Caused by Viruses
Rickettsiae.

R

Abs Jour: Ref Zhur-Biol., No 5, 1958, 21598.

Author : Klyucharev, D. V., Rafalovich, A. Ye.

Inst :

Title : Intradermal Vaccination Against Swine Pest.

Orig Pub: Veterinariya, 1957, No 2, 22-23.

Abstract: Experiments performed on 6 immature pigs have shown that an intradermal inoculation of 1, 0.5 and 0.25 ml of antipest vaccine creates a stable immunity. The authors recommend that intradermal vaccination against swine pest should be widely used in practice.

State Controller Arnavirskoy biofabriki

Card : 1/1

Planning village centers. Sel'. stroi. 13 no.10:16-19 0 '58.

(MIRA 11:10)

1. Glavnyy inshener proyekta instituta "Rozgiprosel'stroy."
(Farm buildings) (Architecture, Domestic--Designs and plans)

KLYUCHAREV, K. A.

Tobacco Manufacture and Trade

Twin presses. Tabak 13 no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, June 1952, Uncl.

KLYUCHAREV, K.V. [deceased]

**Materials for a quantitative analysis of the zooplankton of the
Black Sea near Karadag. Trudy Karad.biol.sta. no.12:78-95 '52.**

(BLACK SEA--ZOOPLANKTON)

(MIRA 9:9)

KLYUCHAREV, L. A.

The Study of Erythropoiesis in Radiation Sickness From
the Rate of Iron and Sulphur Replacement in Hemoglobin.

VOYENNO-MEDITSINSKIY ZHURNAL
No. 1, January 1956 pp 26.

EXCERPTA MEDICA Sec. 5 Vol. 11/6 June 57

KLYUCHAREV, L.A.

3582. KLYUTCHAREFF L.A. Mil. Med. Acad. Kiroff, Leningrad. • Metabolism of iron during blood loss and in shock (Russian text) ARKH. PATOL. 1956, 18/3 (36-42) Tables 3

The level of plasma iron of dogs and rabbits increases in massive blood losses. It increases on account of iron ferritin. It is possible that the outflow of ferritin from the liver into the blood circulation is connected with hypoxia, developing on the base of blood loss. Ferritin is very quickly utilized in erythropoiesis. Traumatic shock is accompanied by increased iron metabolism only when considerable blood loss occurs.

Dvořák - Brno

Chair of Biochemistry

COUNTRY	: USSR	T
CATEGORY	: Human and Animal Physiology, Blood	
ABS. JOUR.	: RZhRiol., No. 5 1959, No. 21892	
AUTHOR	: Klyucharev, L.A.	
INST.	:	
TITLE	: The Nature of Erythropoiesis in Radiation Sickness with Respect to the Rate of Iron and Sulfur Replacement in Hemoglobin.	
ORIG. PUB.	: Tr. Vses. konferentsii po med. radiol. Eksperim. med. radiol. M., Medgiz, 1957, 127--129	
ABSTRACT	: Rabbits were irradiated with 400 or 800 r and 3 to 4 hours later Fe^{59} was injected. Blood samples were taken for a period of 8 days. The weight of the animals did not change, but with a dose of 800 r hemoglobin levels fell by 1--1.5%, the red count by 500,000 to 1,000,000 per mm^3 , and the white count to 1000--2000 per mm^3 . The rate at which Fe^{59} was incorporated into erythrocytes was only half that of the control animals. In a second series of experiments rabbits were irradiated with a dose of 700 r over a period of 60--70 minutes. For the following two days they	
Card:	1/3	

T-22

COUNTRY : USSR
CATEGORY :

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ABG. JOUR. : RZhBiol., No. 5 1959, No. 21892

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : received injections of a methionine solution containing S^{35} (710 mg/kg). Blood was taken at fixed periods for 20 days. The rate at which the S of the Hb was replaced, from the first day following irradiation, was only half that of the control animals. This difference was maintained for the 20-day period. The white count fell to 1000 per mm^3 by the 3rd or 4th day after irradiation, while the erythrocyte count remained almost unchanged. The S^{35} exchange in the bone marrow of 8 irradiated animals was considerably less than in the 8 controls. This difference

Card: 2/3

KLYUCHAREV, L.A., podpolkovnik med. sluzhby, kand. med. nauk

Choice of a method to determine the rate of blood coagulation in
radiation sickness. Voen.-med. zhur. no.6: 68-69 Je '58 (MIRA 12:7)

(RADIATION, eff.

on blood coagulation, method for determ. (Rus))

(BLOOD COAGULATION, eff. of radiations on
method for determ. (Rus))

KLJUCHAREY, L.A. (Moskva)

Biochemistry of a chick embryo. Usp. sov. biol. 49 no.2:174-199
Mr-Apr '60. (MIRA 13:11)

(EMBRYOLOGY-BIRDS)

(METABOLISM)

KLYUCHAREV, N.

Bol'shaya Volga ~~2~~ The great Volga Ul'yanovsk, Izd-vo Ul'yanovskaya

Pravda, 1952

53 p.

So: 8N/5

621.01

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KLYUCHAYEV, N. A.

KLYUCHAYEV, N. A. - "Investigation of the process of deep drawing with heating at various rates." Moscow, 1955. Min Higher Education USSR. Moscow Aviation Technological Inst. (Dissertations for degree of candidate of Technical Sciences)

SO: Knizhnaya latopis', No 48. 26 November 1955. Moscow.

KLYUCHAREV, N.A. (Engineer) GORBUNOV, P.H. (Cand. of Tech. Sci.)

"The Deep Drawing of Sheet Low Carbon Steel and Brass With Flange Beating", from the monograph Investigations on the Deep Drawing of Metals, No 29, Moscow Aviation Technological Institute, Oboronsis, Moscow, 1956, 143 pages

Sum. 1287

KLYUCHARNY, N.A., kand. tekhn. nauk, dots.

Deep drawing of some preheated metals and alloys at various speeds.
Vest. mash. 37 no.8:40-45 Ag '57. (MIRA 10:9)
(Deep drawing (Metalwork))

AUTHOR:

Klyucharev, N.A.

SOV/170-59-3-10/20

TITLE:

On the Problem of Comparing Some Physico-Mechanical Properties of Pure Metals (K voprosu o sravnenii nekotorykh fiziko-mekhanicheskikh svoystv chistykh metallov)

PERIODICAL:

Inzhenerno-fizicheskii zhurnal, 1959, Nr 3, pp 73-77 (USSR)

ABSTRACT:

There are regularities in variations of some physico-mechanical properties in many metals which are dependent on one or another factor. According to modern conceptions many physico-mechanical properties of metals are determined by interatomic bond strength in the crystalline lattice. The strength of these interatomic bonds can be judged by such physical quantities as the amplitude of atom oscillations in the lattice, the closest interatomic separation, sublimation heat, activation energy for self-diffusion and diffusion, and melting temperature. M.G. Losinskiy and S.G. Fedotov [Ref. 6] hold that the interatomic bond strength is best characterized by the elasticity modulus. M.I. Nikolayeva and Ya.S. Umanskiy [Ref. 7] hold that the characteristic temperature is the best criterion, and there are other more or less well founded criteria. The author, however, adhering to the viewpoint of I.Ya. Degtyar [Ref. 4], who cites relations of other

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KLYUCHAREV, N.I., inzh.

Redeposited soil appearing when foundation trenches are worked with hydraulic pipeline dredges; from the experience obtained in the construction of the Kuybyshev Hydroelectric Power Station. Energ. stroi. no. 6:90-94 '58. (VIRA 12:11)

1. Kuybyshevskiy filial Gidroproyekta.
(Dredging)

S/185/60/005/002/015/022
D274/D304

AUTHORS: Val'ter, A.K., Zalyubovs'kyy, I.I., Klyucharyev,
O.P., Pasichnyk, M.V., Pucherov, M.M. and Chyrko,
B.I.

TITLE: Elastic scattering of protons with an energy of
6.8 MeV by isotopes of chromium, nickel and copper

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 5, no. 2, 1960,
270-272

TEXT: The angular distribution of elastically scattered protons
by the isotopes: Cr⁵², Cr⁵³, Ni⁵⁸, Ni⁶⁰, Ni⁶², Cu⁶³, Cu⁶⁵ is inves-
tigated. Up to now it has not been easy to formulate a theoretical
interpretation of the effects related to proton scattering; hence,
the importance of gathering and systemizing relevant data. The
protons with energy 6.8 ± 0.1 MeV were obtained on the cyclotron
of the Physics Institute of the UkrSSR. The proton scattering was
detected by a scintillation spectrometer. The measurements were
conducted from 20° to 160°, at angle intervals of 5°. The investi-

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Elastic scattering of protons...

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gated mixtures contained at least 98% of the isotope, with the exception of Cr⁵³ whose proportion was 95%; they were in the form of thin (3 - 4 μ) plates. The results of the investigations are given in 2 figures, where the angular distribution is plotted as the ratio of an experimental differential cross-section to the Rutherford cross-section. The results show a noticeable shift in the position of the maxima and minima of the angular distributions. It is noted that such a shift is observed for small differences in the mass number of the scatterer nucleus. Thus the distribution curve for Cu⁶⁵ is shifted by 5° with respect to that of Cu⁶³. Such a result is in good agreement with data on proton scattering with 19.6 MeV energy. The form of the distribution curves for both Cu isotopes is entirely identical. The results for Cr isotopes are different. The differential cross-section in the region of large angles is considerably greater for Cr⁵² than for Cr⁵³. It is noted that it would be even much greater if the energy separation in the experiment would be higher. In the case of Ni isotopes, the distribution curve for Ni⁶² differs greatly from those for Ni⁶⁰. For Ni⁶² the cross section decreases considerably with increasing angles larger

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L 13135-66 ENT(m)/EPF(n)-2/EWP(1)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) IJP(c) JD/MM/
 ACC NR: AP6002031 (A) HW/JG/RM SOURCE CODE: UR/0185/65/010/012/1369/1371
 AUTHORS: Klyucharev, O. P.; Palatnyk, L. B.; Nykolaychuk, A. D.
 ORG: Physicotechnical Institute AN UkrSSR, Kharkov (Fizyko-tekhnichnyy
 instytut AN URSR);
 Polytechnic Institute im. V. I. Lenin (Kharkivs'kyy politekhnichnyy
 instytut) Kharkov 8
 TITLE: X-ray structure analysis of isotope targets used for nuclear
 investigations 13.55 B
 SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 12, 1965, 1369-1371
 TOPIC TAGS: x ray study, crystal structure analysis, titanium,
 hafnium, zirconium
 ABSTRACT: Titanium, zirconium, and hafnium foils 1 -- 7 μ thick were
 prepared by thermal dissociation of their iodides. The deposition of
 thin isotope layers on a heated substrate was carried out in two stages:
 preparation of the break up of the iodides outside the chamber, and
 thermal dissociation of the end product in the form of a directed flux
 of molecules in a continuously evacuated chamber. X-ray investigations
 were carried out of foils deposited on a molybdenum substrate at tem-
 peratures of 950 -- 1250C every 50C using 20 -- 30 samples of each

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CA

KLYUCHAREV, S.

21

Hypochlorite treatment of viscose fibers containing starch also. S. Klyucharev, *Tekstil. Prom.* 8, No 2, 26 (1964).—Filtration of the fiber in a cold alk. soln of NaCl (contg. 2 g./l. NaClO₂, 2 g./l. wetting agent NB, and 2 g./l. active Cl as NaOCl) is followed by cooking in a hot alk. soln. (2 g./l. NaOH, 2 g./l. NaPO₃·12H₂O, and 2 g./l. Na bicarbonate). Marshall Sells

KLYUCHAREV, S.I., professor (Moscow).

Calculus in the pericardiac cavity. Klin.med. 31 no.3:82-83 Nr '53.
(Calculi) (Pericardial Diseases) (MLRA 6:5)

KLYUCHAREV, S.S.

~~AAP Library Translation No. 296~~

"Tentative Analysis of Temperature Variations in the Troposphere", S.S. Klyucharev.
Met i Gid, No. 10, Oct 1940, pp 32-37.

KLYUCHAREV, S.S.

Meteorological Abs.
Vol. 4 No. 11
Nov. 1953
Meteorological
Observations and
Instruments

4.11-34
Klyucharev, S. S. O vychislenii advyktali temperatury v tsellakh aerologicheskogo analiza. [The measurement of temperature advection for aerological analysis.] *Meteorologiya i Gidrologiya*, No. 3:20-24, Nov. 1950. 2 figs., 2 tables, 4 refs., 7 eqs. DLC—Temperature
advection in the lower layers of the atmosphere is measured by the following equation: $\left(\frac{\partial T}{\partial t}\right) = \left(\frac{\partial T}{\partial x} V_x + \frac{\partial T}{\partial y} V_y\right)$, where $\frac{\partial T}{\partial x}$ and $\frac{\partial T}{\partial y}$ are temperature gradients and V_x and V_y are wind velocities. An example of calculated advective temperature changes at the nearby points is presented. For calculating temperature advection at elevation exceeding 1000 m the following formula is derived: $\left(\frac{\partial T}{\partial t}\right) = \frac{0.36}{h_0 - h_1} \sum_{i=1}^n v_i \alpha_{i-1} \sin \alpha_i$, where $\left(\frac{\partial T}{\partial t}\right)$ is in degrees/3 hours: 0.36—coefficient for latitude 56°N.; h_0 — h —thickness of the atmospheric layer in kilometers; v_i and α_{i-1} —wind velocity in m/sec at elevation h_i and h_{i-1} ; α_i angle between vectors v_i and v_{i-1} . An example of the application of this method to the analysis of a cold air intrusion is given. Advantages of advection with elevation during the passage of a cold front and the distribution of temperature with elevation are calculated. Subject Headings: 1. Advective temperature measurements 2. Aerological studies 3. U.S.S.R.—I.L.D.

EH

KLYUCHAREV, S. S.

"A Technique for Calculation of Advectional Changes of Temperature Using
Pilot-Balloon Observation Data," Meteorology and Hydrology, Issue No. 4,
December 1950, Leningrad.

U 2020, 29 May 52

KLYUCHAREV, S.S.

154-39
CFO
151.501.7-151.524
Klyucharev, S. S. *Yekhnika opredeleniya izmeneniya temperatury po daniyam*
skopulyatsii moloditsy. (Tekhnika izmereniya izmeneniya temperatury po daniyam
skopulyatsii moloditsy.) *Moskva, Gidrometizdat, No. 4:39-41, Dec. 1951. 2 figs.*
tabls. 70, 71. 4p. DLC—A practical method of determining advection is introduced. This
method can be used only for the determination of advection in the free atmosphere (above
1 km altitude) and in mountains where local topographic conditions influence the distribution
of winds. The formula and nomogram are calculated for latitude 56°. A nomograph for
Moscow (June 2, 1947) illustrates the method. Subject headings: 1. Advection temperature
change. 2. Nomograms. 3. Pilot balloon observations. —A. M. P.

1 3 8

154-39

KLYUCHARNY, S.S.

Use of extrapolation formulas for the purpose of forecasting
movements of pressure centers. Meteor. i gidrol no.3:26-28
Nr 156. (MIRA 9:7)
(Atmospheric pressure) (Weather forecasting)

3(7)

SOV/50-59-10-2/25

AUTHOR: Klyucharev, S. S.

TITLE: On the Reasons for the Change of Atmospheric Pressure on the Earth's Surface

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 10, pp 8 - 12 (USSR)

ABSTRACT: This article is intended to explain the physical processes causing the pressure change according to formula (1). This formula was obtained by integrating the equation of continuity with respect to height, from sea level to the upper limit of the atmosphere (Ref 3). It shows that the pressure change on the earth's surface depends on two factors: 1) the transfer of air masses at the velocity of the "average wind", the components of which are u and v_m ; 2) the divergence of the "average wind". The first term of the right member of formula (1) is denoted the term of advective pressure change, the second one corresponds to the dynamic pressure change. If the "average wind" and the horizontal pressure gradient are known, the advective term is easily computed. The dynamic change may be determined as the difference between the local and advective pressure change. Data on advective and

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On the Reasons for the Change of Atmospheric Pressure
on the Earth's Surface

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dynamic pressure changes computed for the Moscow area according to aerological observations made by the Tsentral'naya aerologicheskaya observatoriya (TsAO) (Central Aerological Observatory) in July-October, 1953, January 1955, from November 15, until December 15, 1955, and January 1956 (see also N. L. Taborovskiy, Ref 4), served as the principal sources of this article. On the basis of data obtained by aerological observations of the TsAO (Moscow) and with the help of formulas (2) for u_m and v_m (the lower integration limit being assumed equal to 100 mb), the "average wind" was calculated in 513 cases and compared to the winds actually occurring at various heights. It appeared that the direction of the "average wind" agrees most frequently with the direction of the actually occurring wind on the 500-mb isobar. It is shown that in the case of geostrophic motion the "average wind" is easily expressed by the quantity $\Phi(x,y)$, which is calculated according to the heights of the isobars. As there are always deviations from the geostrophic motion, the "average wind" was calculated here on the basis of observations of the "actual wind". The resultant coefficient of the correlation between ad-

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On the Reasons for the Change of Atmospheric Pressure
on the Earth's Surface

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vective and local pressure change in winter amounts to $+0.7$. This is indicative of a close relation between the two quantities. In summer the correlation coefficient was $+0.4$. The coefficient of correlation between the dynamic and local pressure change amounts to $+0.27$, which indicates the absence of a distinct dependence. But the relation between the dynamic and advective pressure change is somewhat more pronounced (correlation coefficient equals -0.48). To render the schemes arranged by N. L. Taborovskiy (Ref 4) in 1947 on the distribution of advective and dynamic pressure changes in the cyclone area somewhat more precise, the author mapped here seven charts for the advective and dynamic pressure change occurring in wintertime over the European part of the USSR. The latter then served for a computation of the mean values of the above changes as shown in figure 2. In addition, the AT_{500} chart is given for comparative purposes. Figure 2 shows that behind the cyclone, where the advective pressure rises to 7 mb within three hours, there is the area of the dynamic drop ranging over the cyclone center. The greatest dynamic drop occurs at the earth's

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